DOCUMENT RESUME

ED 259 212 CE 041 954

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TITLE Job-Related Basic Skills. Overview. ERIC Digest No. 42.
INSTITUTION ERIC Clearinghouse on Adult, Career, and Vocational Education, Columbus, Ohio.
SPONS AGENCY National Inst. of Education (ED), Washington, DC.
PUB DATE 85
CONTRACT 400-84-0004
NOTE 3p.
PUB TYPE Information Analyses - ERIC Information Analysis Products (071)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Basic Skills; Cooperative Planning; Cooperative Programs; Delivery Systems; Educational Benefits; Educational Cooperation; *Educational Needs; Educational Practices; *Education Work Relationship; Employment Programs; *Functional Literacy; Job Performance; *Job Skills; Literacy Education; Outcomes of Education; Postsecondary Education; Program Development; School Business Relationship; School Role; *Skill Development; Training Methods; Training Objectives; Transfer of Training

ABSTRACT

Because of the changing nature of work in society, higher levels of basic skills in reading, writing, and computation are needed in all occupational areas, whether or not they are related to high technology. Although research on the relationship between job performance and basic skills is not definitive, it is clear that it is more important for workers to be able to apply basic skills in a job performance situation than to demonstrate these skills on a standardized test. Examples of successful occupationally oriented basic skills programs include a public and private sector cooperation effort to prepare Comprehensive Employment and Training Act eligible workers as competitive word processing operators, an urban retraining program for wastewater treatment workers, and an occupational literacy training program sponsored by the U.S. Department of Defense (the FLIT Program). Research indicates that individuals who wish to develop job-oriented basic skills programs should strive to maintain an orientation to the mission of the agency for which the basic skills program is being developed, provide training in basic skills within a functional context, arrange program conditions to maximize learning time, and use competency-based mastery learning techniques. (MN)

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OVERVIEW

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JOB-RELATED BASIC SKILLS

What is the Status of Job-related Literacy Among Today's Work Force?

Several factors attest to a growing concern about the occupational literacy levels of workers. These factors include the deficient academic levels of those entering the work force, the changing nature of work in our society, and economic problems resulting from workers' inability to meet the basic skill requirements of the job.

Statistics indicate that over the past 40 years, the national percentage of high school graduates attending college has risen from 15 percent to 56 percent and that those presently not electing to go to college are less academically qualified than those of earlier decades (Lisack 1984). Whereas more competent candidates were previously available for entry-level jobs in industry, today, many of these individuals are attending college while those who do enter the work force tend to have lower academic skills.

Because of the changing nature of work in our society, a higher level of basic skills in reading, writing, and computation is required in the growing occupational areas of high-technology and service industries than that required of workers in the declining areas of farm labor and home child care. Even those jobs not related to high technology are requiring a higher level of basic skills.

Industry reports indicate that there are increased economic problems due to low literacy skills of workers (Hymowitz 1981). In a survey conducted by the Center for Public Resources (Henry and Raymond 1982), employers indicated that 30 percent of the secretaries had difficulty reading at the levels required by their jobs, 50 percent of the managers and supervisors were unable to write paragraphs free of mechanical error, and 50 percent of skilled and unskilled employees were unable to solve math problems using decimals and fractions.

How Is Job Performance Related to Basic Literacy Skills?

Campbell and Sechler (1984) report that employers expect workers in entry-level positions to be more than functionally skilled in the areas of reading, computation, and writing. In the area of computation, employees need to be able to work with decimals, metric measurements, numeric relations, simple linear equations, and problem solving. Necessary literacy skills include reading to infer meaning, to generalize, and to detect fallacy and persuasive intent; and reading for facts, information, and ideas. In the area of writing, employees are expected to have knowledge of the rudiments of grammar; to be able to complete reports, forms, and applications; and to possess the basic skills of grammar, sentence structure, and paragraphing.

Although research about the relationship between job performance and basic skills is not definitive, several trends do emerge. Sticht (1975) reports that within the military a good deal more than reading ability as measured by a reading test is necessary to explain job performance. Mikulecky and Winchester (1983) note that, whereas among nurses a low correlation between measured ability and job performance had previously been observed, a higher correlation is now apparent between job performance and the ability to apply and use reading, writing, and computation skills. In essence, it is more important for workers to be able to apply basic skills in a job performance situation than to demonstrate these skills on a standardized test.

What Are Some Examples of Successful Occupationally Oriented Basic Skills Programs?

Research indicates that larger companies are more likely than smaller companies to have training programs. Although the impetus has been on management and technical training, in recent years basic skills training has been on the increase. Areas of concentration range from literacy training in blueprint reading to management training in communication skills. Several research and development projects have been conducted that demonstrate possibilities for integrating basic skills and technical skill training. Three examples are discussed here.

A Public and Private Sector Cooperation Effort to Prepare CETA-Eligible Workers as Competitive Word Processing Operators

A program operated by the Technical Assistance Training Corporation in Chicago illustrates how trainers integrated basic skills training with on-the-job training. Operators were needed who had skills in word processing and in editing and basic grammar. A literacy level of 10th-to-13th-grade level was required. Applicants were screened using cloze tests constructed from a representative writing sample taken from business correspondence and word processing manuals. Other screening involved measuring the applicant's ability to spot and correct errors on job correspondence, invoice forms, and business reports. Applicants were screened out who had reading levels of more than two grades below that of the average practicing operator. Specialists in reading, word processing, and business worked with the students. The goal of the training was to integrate language and machine skills within a job simulation. Unlike much current "schooling," this cooperative program assumed no guaranteed transfer of basic skills training to the employment situation and consistently used job simulation as a major training device. The results of the program were reflected by the early success of trainees in finding employment.

Urban Retraining Program for Wastewater Treatment Workers

This program involved retraining workers to meet increased basic skills levels and technical demands of jobs that were in transition. Workers who needed little technical training to work in an obsolete wastewater treatment plant faced an entirely different situation when a new plant opened. Prior

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to transfer, the workers needed retraining to learn how new processes and equipment functioned, the necessary safety precautions for working with dangerous gases, and how to maintain microorganisms essential to wastewater treatment. For a large percentage of workers, the classroom material, which ranged in reading level from 11th grade to college level, was too difficult. A major academic goal was to help trainees gain mastery of technical vocabulary, concepts, and material. A reading specialist rewrote and redesigned material to lower its difficulty level to sixth grade. Training was then provided in basic skills and in technical areas. The amount of special training received by workers varied depending upon individual need and the demands of the particular technical class they were attending. The basic skills component was judged a success. Those students who participated in this phase of training passed their technical class posttest, were better able to summarize materials, and attended training on a more regular basis than those who attended technical classes only.

The weaknesses of the program paralleled weaknesses in traditional schooling. The basic skills were not initially integrated with technical training. Instruction was fragmented, feedback to students about gains and weaknesses was limited, and time on task was dependent on the self-discipline and interest of the students.

Occupational Literacy Training in the U.S. Department of Defense: The FLIT PROGRAM

This project identified minimum competency levels for job-related reading in the U.S. Army and subsequently developed a job-related functional literacy program (FLIT). Three primary approaches were used to determine reading level requirements in the U.S. Army. Each approach studied the relationship of general reading ability to different criteria including measures of job proficiency, structural properties of job reading materials, and performance of empirically determined job tasks. The intent was to develop training that would produce students capable of using job-related materials with the effectiveness of persons having a seventh-grade reading ability. This was to be accomplished by ensuring that all job reading training would be conducted using concepts, content, and reading materials from the student's own job area. The program concentrated on (1) providing training in the application of existing general reading skills to job-specific Army reading tasks, (2) improving reading skills and job knowledge by using simplified versions of Army job reading materials, and (3) allowing students to read job-related materials of their own choosing.

The results of the FLIT program revealed that job reading of of job-related materials showed larger gains than general reading. It was concluded that if training in reading were given in a well-specified domain, then a person's "general" literacy would increase in proportion to competency improvement in the specific domain. General reading ability could thus be improved through the aggregation of specific abilities.

How Can Occupationally Oriented Basic Skills Programs Be Developed?

Individuals who wish to develop job-oriented basic skills programs may find the following four principles helpful:

1. Maintain an orientation to the mission of the agency for which the basic skills program is being developed. By integrating basic skills and technical skills training, effective programs can be developed that will help the agency achieve its goal in a cost-effective manner.
2. Provide training in basic skills within a functional context. The more similarity between the basic skills training and the job situation, the greater the likelihood the training will pay off.
3. Arrange program conditions to maximize learning time. Learning occurs best when persons are actively participating. Increasing time on task contributes to the goals of the persons and the organization.
4. Use competency-based mastery learning. Basic skills programs should be derived from the domain relevant to a person's occupational setting. Competencies should be in terms needed to perform tasks on the job in regard to literacy, oracy, and numeracy.

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This ERIC Digest was developed by Kathleen K. Thiel, ERIC Clearinghouse on Adult, Career, and Vocational Education, with funding by the National Institute of Education, U.S. Department of Education, under Contract No. NIE-C-400-84-0004. The opinions expressed in this report do not necessarily reflect the position or policies of NIE or the Department of Education. Orders for National Center publications should be sent to the Publications Office, Box E, or call 614-486-3655/800-848-4815.

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